

Comment Letter 1

Kristen T. Castaños, Submitted on behalf of the California Rice Commission

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Calif. Rice Comm.

SUMACH, SIMMONS & DUNN

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February 6, 2006

Paul Hann
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

Re: Amendments to the Water Quality Control Plan for the Sacramento River
and San Joaquin River Basins (Basin Plan) to Control the Discharge of
Pesticides

Dear Mr. Hann:

These comments are submitted on behalf of the California Rice Commission (CRC) with respect to the upcoming California Environmental Quality Act (CEQA) public scoping meeting and public workshop on the development of Basin Plan amendments related to pesticide discharges. CRC appreciates the opportunity to provide comments and participate in the public workshop. CRC has several concerns, however, about the scope of the proposed Basin Plan amendments and certain assumptions underlying this effort.

As an initial matter, it is extraordinarily difficult to provide any meaningful comments on the proposed CEQA scoping and public workshop because very little information has been provided to define the proposed CEQA project and the proposed Basin Plan amendments. These comments, therefore, focus on the minimal information that is available in the public notice and fact sheet.

CRC believes that it is inappropriate to undertake this Basin Plan amendment process at this time. The Regional Water Quality Control Board (Regional Board) is in the midst of implementing several programs aimed at addressing pesticide discharges and the proposed Basin Plan amendment process will duplicate many of those efforts. Most notably, the Regional Board and the agricultural community are currently devoting significant resources to the Irrigated Lands Program (ILP), in accordance with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands. (See, Resolution No. R5-2005-0105 and amendments thereto.) The ILP is a comprehensive effort by agricultural dischargers to sample, monitor, and analyze discharges from irrigated lands. The impact of pesticides on surface waters is being

evaluated through this effort and, notably, the initial monitoring results indicate that pesticide toxicity is limited. The limited information that is provided on the proposed pesticide Basin Plan amendments suggests that the proposed Basin Plan amendment process will duplicate the ILP efforts. CRC suggests that the Regional Board refrain from pursuing pesticide Basin Plan amendments unless and until the ILP program identifies a need for such amendments.

Similarly, the rice industry has been participating in the Rice Pesticide Program for over twenty years with inclusion into the Basin Plan in 1990. Through this program, CRC coordinates sampling and monitoring of rice pesticides during the pesticide use season. Many of the pesticides discussed in the Regional Board's "Relative Risk Evaluation for Pesticides used in the Sacramento River Watershed" (Draft, Oct. 2005) are included in the Rice Pesticide Program. CRC and the Regional Board have substantial amounts of data and information about the impact of rice pesticides on surface waters and aquatic life, and this information should be utilized in any pesticide Basin Plan amendment process.

Further, it is unclear how the proposed pesticide Basin Plan amendment process relates to the efforts underway to develop total maximum daily loads (TMDLs) for diazinon and chlorpyrifos (see, Notice of California Environmental Quality Act (CEQA) Scoping Meeting for the Development of a Basin Plan Amendment to Control the Discharge of Diazinon and Chlorpyrifos and Establish a Total Maximum Daily Load for Diazinon and Chlorpyrifos in the Sacramento and San Joaquin Delta (Delta), dated Nov. 18, 2004), as well as the current program to address toxic hotspots.

There is no demonstrated need for the Regional Board to initiate yet another, separate program to evaluate pesticide discharges. The ILP program, along with the Rice Pesticide Program and the various other efforts underway, are sufficient to address pesticide discharges, particularly rice pesticides.

To the extent the Regional Board moves forward with the proposed Basin Plan amendment process, CRC believes that the scope of work outlined in the fact sheet presents an appropriate process for determining and analyzing appropriate Basin Plan amendments related to pesticides. In accordance with Water Code section 13241, CRC encourages the Regional Board to follow this process carefully, allowing public input at each stage, and use the information developed through this process to determine whether any Basin Plan amendments are warranted. There are, however, a number of ambiguities in the public notice and fact sheet that require clarification.

The fact sheet indicates that the Regional Board will review aquatic life beneficial uses that apply to streams, not constructed conveyances. (Fact Sheet at pp. 1, 2.) CRC

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believes that it is appropriate to focus any efforts on streams that should support aquatic life, and not on constructed conveyances. CRC requests that the Regional Board focus on ensuring that any Basin Plan amendments clearly indicate the scope of their applicability, and avoid misunderstandings that result from application of the Basin Plan's Tributary Rule (Basin Plan at p. II-2.00), and other provisions that the Regional Board uses to identify designated beneficial uses. Similarly, the Regional Board should focus on ensuring that any Basin Plan amendments focus on water bodies that support aquatic uses (Fact Sheet at p. 1), and avoid application to water bodies where such uses do not or cannot exist, despite identified designated uses.

CRC also has numerous technical comments on the "Relative Risk Evaluation for Pesticides Used in the Sacramento River Watershed." According to the Regional Board's website, "this assessment will be used by Regional Board staff to guide monitoring efforts and the development of water quality criteria." It is, therefore, critical that this assessment be technically accurate. The attached document includes technical comments on this assessment.

Thank for the opportunity to comment on this proposed program. CRC is available to provide any additional information, particularly concerning rice pesticides, and looks forward to continuing to participate in this process.

Sincerely,



Kristen T. Castaños

KTC/jlp

Attachment

cc; Tim Johnson (w/attachment)



TECHNICAL COMMENTS ON THE RELATIVE RISK EVALUATION FOR PESTICIDES USED IN THE SACRAMENTO RIVER WATERSHED

The California Rice Commission (CRC) submits the following comments on Regional Water Quality Control Board (Regional Board) "Relative Risk Evaluation for Pesticides Used in the Sacramento River Watershed (Draft, Oct. 2005) ("Evaluation"). As an initial matter, review of the Evaluation is difficult due to inconsistencies in the pesticide evaluation. The Evaluation does not identify a specific time period for the assessment, and alters from pounds of active ingredient (AI) to acres treated. As a result, CRC reviewed the evaluation of each rice related pesticide on an individual basis.

On page 12, in the paragraph preceding section 4.2 of the Evaluation, oxyfluorfen and trifluralin are referred to as pyrethroid (insecticide) pesticides, but, in fact, they are herbicides. On pages 11 and 12 of the Evaluation, oxyfluorfen and trifluralin are correctly described as herbicides. The Evaluation needs to be corrected and must recognize that pyrethroids are insecticides, and are not in a class by themselves.

Page 16 of the Evaluation discusses glyphosate-trimesium. Glyphosate-trimesium was registered as two Touchdown Herbicide products. The registrations became inactive on November 14, 2000 and December 31, 2003. Zeneca, the registrant, went through an acquisition to Novartis, which became Syngenta. The Touchdown brand name exists, but was reformulated to glyphosate diammonium salt, glyphosate potassium salt or glyphosate. Very little glyphosate-trimesium was ever used on rice.

The pesticides carbofuran, malathion, methyl parathion, molinate and thiobencarb are in the Basin Plan's Rice Pesticides Program. The two herbicides molinate and thiobencarb are currently monitored. Carbofuran is no longer registered for use on rice and malathion and methyl parathion are used very little (<500 acres) or not at all.

The Evaluation uses surface water concentration data for the eight counties Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Yolo and Yuba. The major source for this data is the Department of Pesticide Regulation ("DPR") Surface Water Database (SWDB). CRC used the DPR Pesticide Use Report (PUR), which is the source for acres treated and pounds of AI from the DPR SWDB.

The Evaluation includes pesticide summaries for major reported applications as percentages. It is unclear whether this is the number of applications, the acres treated or the pounds of AI. No specific year or range of dates is included as a reference point.

Carbofuran – identified as high risk that may be changed to moderate

The registration on rice was cancelled in 1999 with existing stocks used through 2000. One carbofuran product is currently registered for use in California mainly on alfalfa. No product from rice field applications should be found, per the evaluation pointing to high solubility in water and 50-day half-life. The document states that carbofuran is no longer used on rice, but the use patterns and acreage numbers are from rice field applications. This information is very misleading.

The DPR and the CRC monitored carbofuran from the start of the Rice Pesticides Program until the product cancellation.

Lambda cyhalothrin – identified as high risk

A pyrethroid insecticide used as an organophosphate (OP) replacement. The use began in 1998 when the product was first registered in California. Rice was added to the label in 1999. The Evaluation states that the highest use was 10,595 pounds in 2000. In fact, the highest use was in 2000 at 7,224 pounds, which includes Tehama County and structural applications.

Lambda cyhalothrin was registered and first available for use on rice in 1999. From 1999 to 2004, the average treated rice acres were 63,853. From 1998 to 2001, (the dates used in the Evaluation) the average treated rice acres were 49,516.

1998 – total pounds AI were 284, with zero applied to rice.

1999 – total pounds AI were 3,860, with 750 applied to rice, or 19%.

2000 – total pounds AI were 7,224, with 4305 applied to rice, or 60%.

2001 – total pounds AI were 5,739, with 2692 applied to rice, or 47%.

In reality, lambda cyhalothrin is a minor use to a major crop. In 2004, the USDA Interregional Program No. 4 (IR-4), a minor crop program, awarded a grant to study a biopesticide insecticide on rice. Looking at lambda cyhalothrin usage on rice from a minor use perspective results in the following averages:

1998 – zero

1999 – 22,250 acres treated of 510,000 acres planted, or 4.36% of the rice acreage.

2000 – 104,201 acres treated of 550,000 acres planted, or 18.94% of the rice acreage.

2001 – 68,611 acres treated of 473,000 acres planted, or 14.51% of the rice acreage.

From 1998 to 2001, only 12.72% of the rice acreage was treated with lambda cyhalothrin.

Tomatoes were the other major crop with sunflowers increasing in use. The next major use is structural.

DPR and Syngenta, the registrant, monitored lambda cyhalothrin in 2000 and 2001. DPR monitored lambda cyhalothrin in 2000 at Colusa Basin Drain 5 (CBD5) and Sacramento River 1 (SR1). The detection limit was 0.01 ug/L, less than the lowest AQUIRE value. All results were non detect.

Syngenta monitored lambda cyhalothrin in 2001 at CBD5, Tuttle Ranch (CBD at the Maxwell Diversion Dam), Johnson Ranch (at Butte Slough), Watt Ranch (CBD at Maxwell-Colusa Highway). The detection limit was 0.001 ug/L. Detections ranged from <0.001 to 0.0052, less than the lowest AQUIRE value.

Rice water holding requirement is 7 days.

Malathion – identified as high risk

An OP insecticide in the Basin Plan's Rice Pesticides Program, but no longer monitored due to little or no use (<500 acres). The highest use on rice was 9,278 acres in 1991, with decreasing usage due to resistance. Rice was never a high use for this product. The major crops are alfalfa, strawberry, lettuce, walnut and greenhouses. In 2004, the total use went up significantly with alfalfa, broccoli, lettuce, greenhouses, strawberry and sunflower as the major crops.

The DPR and the CRC monitored this product for approximately 20 years.

Rice water holding requirement is 4 days.

Methyl parathion – identified as high risk.

No mention of rice in the Evaluation. An OP insecticide still in the Basin Plan's Rice Pesticides Program, but no longer monitored due to no or little use. The highest use was on 91,849 rice acres in 1989, decreasing to zero in 2001.

The DPR and the CRC monitored this product for approximately 20 years.

Rice water holding requirement is 24 days.

Molinate – identified as high risk

A rice herbicide currently monitored in the Basin Plan's Rice Pesticides Program. The molinate cancellation became effective in 2003, and the product is in a five-year phase out that ends in 2008. Existing stocks can be used in 2009, and the U.S. EPA will revoke the tolerance on rice August 31, 2009. The Evaluation should acknowledge this cancellation.

The Evaluation states that molinate and thiobencarb are used in combination. That is an incorrect statement. Many years ago, growers experimented on a small scale by applying molinate followed by thiobencarb around one week later. The products

were never combined in a tank mix, and using both products on one field never became an industry practice. Both products developed resistance to water grass and the combined products are cost prohibitive.

The DPR and the CRC have been monitoring this product for approximately 20 years. The product is California restricted with permit conditions for use.

Rice water holding requirement is 28 days. The soil half-life is 21 days.

Propanil – identified as high risk

Propanil is the economically most important herbicide used in the California rice industry. Propanil can be used early, mid and late season (up to July) and is the only herbicide with no recorded resistance. Rice is the only use for this product, but walnuts were mistakenly recorded in the PUR.

Propanil has always been under close scrutiny due to drift onto prunes and cotton. The product was cancelled in the 1960's and reformulated to the current product. Propanil is a California restricted material with stringent use regulations.

Propanil recently went through a U.S. EPA reregistration eligibility decision (RED) where the risk assessment determined that worker exposure was the only area of concern.

Propanil has very low toxicity to aquatic organisms, so the Evaluation uses EC50 (rather than the LC50) in evaluating water quality data for effects to aquatic plants.

Rice water holding requirement will be 7 days to address any environmental fate concerns from the RED. One product, Stam 80 EDF, already has the 7-day water holding requirement on the label.

DPR monitored propanil 1987, 1988, 1998 and 2001 at Colusa Basin Drain 1 (CBD1), Colusa Basin Drain 5 (CBD5), Sacramento River at Freeport and the Feather River near Olivehurst. The detection limit was 0.004 - 0.5 ug/L. All reportable detection limits were less than the aquatic threshold. One sample had a detection of 20.6 ug/L at CBD5 on May 29, 2001, but did not exceed the toxicity threshold.

Thiobencarb – identified as high risk

A rice herbicide currently monitored in the Basin Plan's Rice Pesticides Program. Thiobencarb is in the Basin Plan because the break down products, when combined with city water treatment chemicals, can create an off-taste.

As discussed above, thiobencarb is not applied in combination with molinate and the same comments apply. The use is dropping off due to resistance and the registration of newer, reduced-risk herbicides.

The DPR and the CRC have been monitoring this product for approximately 20 years. The product is California restricted with permit conditions for use.

Rice water holding requirement is 30 days. The soil half-life is 21 days.

2,4-D, dimethylamine salt – identified as moderate risk

An herbicide used on a wide range of crops with the highest use on rice from 1995 (111,593 acres), 1996 (100,013 acres) and 1997 (119,802 acres). Current rice usage is approximately 20,000 acres per year.

The Evaluation states that the use on rice is 36% with wheat at 29% and almond at 9%. It is not clear what year is referenced in the Evaluation, but in 2004, the use on rice is very minor by comparison to wheat and almonds.

Bensulfuron methyl – identified as moderate risk

A rice herbicide that greatly increased in use, then sharply declined due to resistance. The use peaked in 1994 at 423,144 rice acres. Never have enough rice acres been planted to support an average annual application of 522,982 acres. Never has a rice pesticide been applied to 522,982 acres. The average use from 2001 to 2004 was 38,408 acres. From 1989 to 2004, the average treated rice acres were 221,874.

DPR monitored bensulfuron from 1989 to 1992 at the five Rice Pesticides Program monitoring sites. The detection limit was 0.5 ug/L. All samples were non-detect except for one sample at 2.1 ug/L at Colusa Basin Drain 1 (CBD1) on June 7, 1990, but did not exceed the toxicity threshold.

Carbaryl – identified as moderate risk

An OP insecticide used on rice, but never on more than 44,951 acres in 1997. The Evaluation identifies rice as a major crop. The major crops are rice (26%), tomatoes (13%), sugarbeet (8%), peach (8%), walnut (8%) and melons (8%). The Evaluation does not reference how use was determined and which years were averaged, except to assume the years are 1992 to 2001. From 1989 to 2004, the average treated rice acres were 6,188.

Copper sulfate (basic) and copper sulfate (pentahydrate) – identified as moderate risk.

Copper sulfate (pentahydrate) is used on commercial rice fields for algae control and on organic rice fields to treat tadpole shrimp.

MCPA, dimethylamine salt – identified as moderate risk.

An herbicide used on rice and several other crops. At one time rice was a major crop, but current maximum uses are on barley, oats and wheat.

Azoxystrobin – identified as low risk

The only fungicide registered for use on rice until 2005 when a second (and similar) fungicide became available. Azoxystrobin was one of the first "green" pesticides registered after passage of the 1996 Food Quality Protection Act (FQPA). Azoxystrobin was one of the first reduced-risk pesticides with the registration extended to multiple crops.

Azoxystrobin was first available for use on rice in 1997, and the average annual treated acres were 61,455.

Rice water holding requirement is 14 days.

Glyphosate – identified as low risk.

An herbicide used on rice fields, but not specifically on the crop because it is more of a pre-plant material. From 1989 to 2004, the average treated rice acres were 18,280.

Triclopyr, triethylamine salt – identified as low risk

An herbicide registered for use on rice, other cereal grains, Christmas trees, landscape maintenance and water areas. The total treated rice acres in 2004 were 308,854 and the pounds of AI were 55,723.

The Evaluation states that runoff of triclopyr from rice fields could be a concern. It does not appear that the Evaluation considers the water holding requirement, which addresses this concern.

Rice water holding requirement is 21 days.

DPR monitored triclopyr from 1996 to 1998 and 2001 at the five Rice Pesticides Program monitoring sites. The detection limit was 0.5 - 0.25 ug/L. All reportable detection limits were less than the aquatic threshold. One sample had a detection of 14.5 ug/L at Colusa Basin Drain 5 (CBD5) on June 21, 2001, but did not exceed the toxicity threshold.

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Comment Letter 2

Danny Gottlieb, Representing Citizens For Safe Water in Habitats in and Around Modesto,CA / Stanislaus County / USA

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From: "food_farmer@sbcglobal.net" <food_farmer@sbcglobal.net>
To: Joe Karkoski <jkarkoski@waterboards.ca.gov>
Date: Tue, Feb 14, 2006 2:08 PM
Subject: Re: Comments on Pesticide Basin Plan Amendment

Hi Joe Karkoski,

Please do send back, over-night if possible, the folder of pesticide/fumigant/rodenticide information you offered to return back to me in your mg of today 2/14.

My apology for submitting an overwhelming load of information and multiple references 'in hard copy' instead of by electronic mail. I only found out you desire Comments and scientific references by electronic submission, so someone at your Unit does not have to retype all information, again ... at the Feb 2 meeting.

At the meeting, I meant to mention about an 'old non-foods fumigant' that has been newly approved by EPA as a '*fumigant for certain foods'* ... in replacement for now banned Methyl bromide. The 'fumigant' is used like pesticide to kill larvae or the insect arising from larvae. This fumigant for certain crops & foods is:

*Sulfuryl fluoride

*

Groups challenge EPA's approval of Dow's Sulfuryl fluoride//

/March 29, 2004/

/Groups challenge EPA's approval of Dow's Sulfuryl fluoride://
//EPA allows 5 times higher levels for Infants than Adults /

On March 22, 2004, the Fluoride Action Network (FAN) formally challenged US EPA's approval of Sulfuryl fluoride for use as a fumigant on a wide variety of foods.

EPA identified fluoride as the major toxicological endpoint of concern for exposure to Sulfuryl fluoride. In its Risk Assessment, which served as the basis for approval, EPA made an unprecedented decision to allow an acceptable dosage for infants (0.571 mg/kg bodyweight/day) which is five times higher than for adults (0.114 mg/kg/day).

The Washington, DC-based Beyond Pesticides joined FAN in submitting Written Objections and a Request for a Hearing <<http://www.fluoridealert.org/epa-sf.htm>>, the process necessary to formally challenge EPA's decision.

This is the first time that Sulfuryl fluoride, produced by Dow AgroSciences, has been approved for food use. In its approval, EPA set the highest levels of fluoride residues "in or on food" in US history. As a fumigant it will be used on over 40 foods that include nuts, dried fruit, rice, wheat, barley, etc. Fumigants are used to kill the bugs that infest and destroy stored foods.

Sulfuryl fluoride is Dow's alternative to Methyl bromide, the ozone-destroying food fumigant that has a phase-out deadline of January 1, 2005, for developed countries.

FAN says there are alternatives available to Methyl bromide and Sulfuryl fluoride (both made by Dow) which would allow the US phase-out date to be met. And because alternatives are available, it is unnecessary to allow anyone, particularly the workers who will spray it, to be put at such risk.

*EPA alters safety standard *

According to Paul Connett PhD, Executive Director of FAN, and Professor of Chemistry at St Lawrence University in Canton NY, "EPA's data showed that some children were already receiving more fluoride than EPA's existing safety standard allowed. Such a situation should have been grounds for rejecting Dow's request to add an additional source of exposure to the diet."

However, instead of denying Dow's request, the EPA has opted to increase the tolerable dose for children.

Since children are already receiving excess fluoride from sources such as fluoridated water, toothpaste, and processed foods, Connett states that "EPA was basically faced with one of two choices: reject Dow's request or loosen the safety standard. The EPA chose the latter option."

"The science does not support EPA's decision to again support corporate greed instead of children's health," said Jay Feldman, executive director of Beyond Pesticides, a Washington-DC based national clearinghouse and advocacy organization. He continued, "It is time for the Bush Administration to stop using EPA to support pollution and poisons for political benefit."

*"Unprecedented": EPA sets higher safe dose for infants than adults *

EPA's move has left scientists familiar with risk assessment shaking their heads. In loosening the safety standard for children, EPA has created a situation where the acceptable dose for infants is five times higher than the acceptable dose for adults.

According to Connett, "We feel this is an unjustified and unprecedented decision by EPA, which runs counter to their mandate under the Food Quality Protection Act (FQPA) to set standards that are /more/ protective of children, not /less/."

According to Chris Neurath, Research Associate with FAN: "If EPA's pesticide division had followed their statutory mandate they should have set a standard for children ten times more protective than for adults. Instead they have brazenly manipulated normal protocol and assigned a sensitivity for infants that is 5 times less protective! For infants to be deemed less sensitive than adults is unprecedented."

"There is every reason to believe that children are more sensitive to fluoride than adults," notes Connett. "EPA has cited no new data to justify its decision. We find this to be completely unacceptable."

Several senior scientists at EPA concur.

Speaking on condition of anonymity, senior scientists at EPA - familiar with pesticide risk assessment - explained to FAN that they "have not seen any case where an acceptable dosage for children is higher than for adults."

"EPA's action is irresponsible," they declared.

*Profits for Dow, Risks for the Public *

"We are deeply concerned," says Connett. "Based on the near epidemic rate of dental fluorosis in our children, it is clear that fluoride exposures need to be reduced, not increased."

Dental fluorosis, a mineralization disorder of teeth, is caused by excess ingestion of fluoride during a child's teeth-forming years. The condition is now seen in up to 50% of children in fluoridated areas, and in some children requires expensive cosmetic treatment.

But dental fluorosis is not FAN's only concern.

"The fortunate thing about dental fluorosis is that we can see it. We can see the white spots on a child's tooth and say 'yes, fluoride has caused cellular damage in that tooth.' But what about the internal organs - the ones we can't see?" asks Connett.

Recent research indicates that fluoride accumulates in the pineal gland, which is located between the two hemispheres of the brain. EPA knows that the pineal, an endocrine gland, contains hydroxyapatite (the same as bone) and that fluoride has been found to accumulate to even greater levels in the pineal than in the bone. The pineal gland produces the hormones melatonin and serotonin.

According to Connett, "Animal studies indicate that fluoride lowers the production of melatonin. One of the risks we may be taking by exposing our whole population to fluoride is interfering with delicate regulatory timing processes, from the onset of puberty to the aging process. However, EPA has chosen to ignore this concern."

*Risk to Workers *

Workers are at risk not only from the acute toxicity of Sulfuryl fluoride but also the potential for brain, lung, kidney, and bone effects.

Results reported from animal studies (rats, mice, dogs, rabbits) exposed to Sulfuryl fluoride all share these effects: holes in the brain, necrosis of the brain, and effects on the white matter of the brain (particularly the female species). These results, which come from tests performed by Dow scientists, are not without their limitations.

Researchers did not test male rats in acute neurotoxicity tests. In subchronic neurotoxicity tests, the examination of nervous system tissues were only performed on the highest dosed animals, while a developmental neurotoxicity study has yet to be performed.

Over the past 4 years, the Fluoride Action Network has been working to raise awareness about recent research indicating the potential for human harm from current fluoride exposures.

According to FAN, a growing body of research suggests that fluoride may be associated with several serious health problems, including arthritis, hip fractures, bone cancer, kidney damage, infertility, and brain disorders.

"There is a profound need for precaution on the fluoride issue, and yet a profound absence of it exists in Washington," adds Connett.

(end)

LINKS

* EPA's Final Rule

<<http://www.epa.gov/fedrgstr/EPA-PEST/2004/January/Day-23/p1540.htm>>

* March 2004 Submission to EPA from FAN & Beyond Pesticides

<<http://www.fluorideaction.org/epa-sf.htm>>

* Beyond Pesticides <<http://www.beyondpesticides.org/>>

CONTACTS:

Paul Connett: 315-229-5853 or 315-379-9200

Jay Feldman: 202-543-5450 "

Another Pesticide brand named CRYOLITE [an Aluminum fluoride compound] which is used up and down the San Joaquin valley as a pesticide on crops near aquatically sensitive Rivers and their tributaries on agriculturally 'live' crops, such as:

Historical Use of this Chemical

Top five crops and sites for this pesticide in California

Table and Raisin *Grapes*

<<http://www.pesticideinfo.org/DS.jsp?sk=29141>>* Oranges

<<http://www.pesticideinfo.org/DS.jsp?sk=2006>> Wine *Grapes*

<<http://www.pesticideinfo.org/DS.jsp?sk=29143>>* Bell Peppers

<<http://www.pesticideinfo.org/DS.jsp?sk=11003>> Cantaloupe

<<http://www.pesticideinfo.org/DS.jsp?sk=10002>>

View All Crops and Sites

<http://www.pesticideinfo.org/Detail_ChemUse.jsp?Rec_Id=PC35073>

Reference:

http://www.pesticideinfo.org/List_Products.jsp?Rec_Id=PC35073&Chem_Name=Cryolite&PC_Code=075101

'Cryolite' and other Aluminum fluoride based agricultural and non-agricultural products are regulated to include registered licensed application, and I would hope in your scouring the Counties having having pesticide application records, that you will include 'fluoride based compounds', and map out those applications with 'pesticide applied addresses' within 'storm water runoff distance' of the San Joaquin River and its 'tributaries'.

My main attention in delivery the compendium folder referencing many Uses of 'fluoride based pesticides, fluoride based chemical compounds and specific uses with scientific references indicating 'fluoride ion' from man-made chemical compounds applied in multiple agricultural uses, applied in water utilities so called 'fluoridation treatment of drinking waters' [e.g. fluoridation in Merced-CA for over 50 years, and Los Banos-for over 20 years ... cumulative to habitats and 'point discharge' contaminations to tributary rivers & streams feeding into San Joaquin River].

The folder I submitted to you on Feb 2nd contains a few scientific references as to how 'fluoride' in the Snake and Columbia rivers measurably, negatively affected Salmon and other aquatic life ... particularly as to Salmon in their loosing sense of orientation to navigate those waters.

I don't believe the 'fluoride ion' has ever been tested for at Waste Water Treatment Plant(s) 'point' discharge, or in 'non-point' habitats where fluoride residue accumulates. It's more than just interesting that Bear Creek passing through Merced-CA traverses toward and passes the federally contained 'once heavily polluted' Kesterson preserve as it finally reaches discharge into the San Joaquin River. This may relate & duplicate some of the referenced journal science I included in my 'hard-copy' references submitted to you at the Feb 2nd Modesto CEQA Pesticides meeting held at Harvest Hall, Modesto, CA.

*My request is that all of my herein written Comments be entered into the initial CEQA records. *

And, secondly, that your organization involved in testing & regulating Pesticides; which hopefully includes Fumigants, Rodenticides, Herbicides and other Pest related chemical compounds that will eventually wind up in the air surrounding and over the San Joaquin River, or earlier over and into tributaries feeding the S.J. River. At least, test 'point discharge' sites near Merced-CA and Los Banos and any other discovered 'high use' area for Cryolite, or related compound(s) for residue levels on a beginning PILOT TEST basis.

Remember, 'less than 1% of water utilizes treated waters are ever consumed [e.g. incl., swallowing] by humans'. So, nearly 99% of Hydrofluosilicic acid and/or Sodium fluorosilicate goes to pollute our hundreds of thousands of Habitats (e.g. lands and

rivers/streams/tributaries)...cumulatively over years and years.

THE AFFECT OF FLUORIDES, FROM MANY SOURCES, ON AQUATIC LIFE IN SAN JOAQUIN RIVER AND ITS TRIBUTARIES NEEDS TO BE TESTED, IF EFFECTS EVIDENT ...STUDIED AND CONFIRMED, SCIENTIFICALLY!

Thanks! ... again, Joe for coming to Modesto-CA and introducing the 'Pesticides Study and call for CEQA Input' with your Team.

Please Return/Send folder, hopefully overnight to my home address:

Danny Gottlieb
Agriculturalist,
and Food Scientist [Emeritus]
representing Citizens For Safe Water in Habitats
in and around Modesto,CA / Stanislaus County / USA
1720 Angelene Drive
Modesto, CA 95355-4312

Best Regards,

Danny Gottlieb

Comment Letter 3

G. Fred Lee, PhD, DEE and Anne Jones-Lee, PhD, G. Fred Lee & Associates

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**Comments on the CVRWQCB Sacramento and San Joaquin River
Proposed Pesticide Basin Plan Amendment Development Approach**

G. Fred Lee, PhD, DEE and Anne Jones-Lee, PhD

G. Fred Lee & Associates, El Macero, CA 95618

Ph: (530)753-9630 Em: gfredlee@aol.com

www.gfredlee.com

February 27, 2006

The Central Valley Regional Water Quality Control Board (CVRWQCB) staff have proposed to amend the pesticide regulatory requirements currently in the Basin Plan for the Sacramento and San Joaquin River watersheds. According to the Fact Sheet (CVRWQCB, 2006),

“The Amendment would be designed to establish water quality objectives and a program of implementation for pesticides that are impacting or could potentially impact aquatic life uses in surface waters.”

Based on discussions held at a recent staff meeting devoted to reviewing the proposed approach, the overall objective of this Basin Plan Amendment is to simplify regulating pesticide-caused aquatic life toxicity. As presented in the Fact Sheet, the proposed Basin Plan Amendment has several components. In response to a request for comments on this approach, comments on some of the unreliable aspects of the staff's approach related to developing several of these components are presented below.

One of the major problems with the staff's proposed approach is that the pesticide Basin Plan Amendment is to be developed on a “crash” basis within a two-year period. A number of the topic areas that are proposed by the staff to be included in this pesticide Basin Plan Amendment are devoted to topics that have been worked on for many years by the US EPA and others, with much greater financial and technical assistance resources than are available to the CVRWQCB staff. Many of the issues that the staff propose to address on a “crash” basis will not be successfully addressed with the resources available in the timeframe allowed.

Water Quality Criteria

Based on having been involved in investigating the impact of pesticides on aquatic life related beneficial uses of waterbodies since the 1960s, I (G. Fred Lee) find that several aspects of the staff's proposed approach for regulating pesticides are potentially technically invalid and can readily lead to inappropriate regulations. As discussed below, the basic problem is that the staff, in developing this approach, potentially could fail to adequately consider the aquatic chemistry and aquatic toxicology/biology of pesticides as they impact aquatic life.

One of the objectives of the proposed pesticide Basin Plan Amendment is to establish numeric water quality objectives for pesticides. It is important that the staff fully understand and address the difficulties of developing reliable water quality criteria/objectives. This is a topic that I have been involved in since the late 1960s, including serving as an invited peer reviewer for the National Academies of Science and Engineering's Blue Book of Water Quality Criteria, 1972. Further, I was a member of the American Fisheries Society's review panel for the US EPA's Red

Book of Water Quality Criteria that was published in 1976. In addition, I was an invited peer reviewer of the US EPA's Gold Book of Water Quality Criteria of 1986. This peer review panel reviewed the approach that the US EPA used then and continues to use to develop water quality criteria. Further, I have participated in a number of US EPA workshops on updating water quality criteria and standards. I am familiar with the approaches that can and should be used to develop appropriate water quality criteria and standards that will adequately regulate potentially significant water quality impacts without significant overregulation which would unnecessarily curtail the use of pesticides.

While it is relatively simple to develop numeric values that can be called "water quality objectives" for pesticides, without an adequate and reliable database of the impact of pesticides on aquatic life-related beneficial uses, such simplified approaches for developing water quality criteria/standards/objectives can readily lead to inappropriate regulation of pesticides.

At the staff meeting, I asked about the overall approach in developing water quality objectives relative to the Clean Water Act requirements of developing criteria that are protective in all waters. This approach was mandated by the US Congress as part of the 1972 amendment to the federal Water Pollution Control Act. However, as is well established, developing water quality criteria that will be protective against aquatic life toxicity in all waters will result in criteria that are highly overprotective in many waters. The US EPA understood this situation and has developed a Water Quality Standards Handbook (US EPA, 1994) that enables site-specific adjustment of a water quality criterion for waterbody characteristics that tend to cause a potentially toxic chemical, such as a pesticide, to exist in nontoxic forms. As I indicated at the staff meeting on the proposed Basin Plan Amendment development approach, the staff should also develop at the same time guidance on how to develop a site-specific water quality objective modification approach for pesticides that can be applied to make the objectives more appropriately applicable to a particular waterbody in which there is interest in regulating pesticide concentrations.

The current Basin Plan approach for regulating pesticides and other chemicals is based on controlling aquatic life toxicity due to these chemicals. This narrative approach has considerable technical merit, in that it incorporates, through toxicity testing, an assessment of the waterbody site-specific characteristics that affect the primary impact of the pesticide on aquatic life – i.e., toxicity.

A recent example of the importance of assessing aquatic life toxicity in evaluating the potential impacts of pesticides occurs in the report that Larry Walker Associates (LWA 2006) submitted to the Sacramento/Yolo Mosquito and Vector Control District. There was concern about the use of a pesticide (natural pyrethrin) that was used in aerial spraying in an attempt to control mosquito populations that could carry the West Nile Virus. LWA focused the assessment of whether the pyrethrin that settled into the waterbodies in the Sacramento/Yolo County area could be causing aquatic life toxicity based on measurements of the concentrations of pyrethrin in the waterbody. They compared these concentrations to LC50 concentrations for toxicity to aquatic life that had been reported in a US EPA database. They concluded that there was little likelihood that the concentrations found, which in some waterbodies exceeded the LC50 for certain forms of aquatic

life, were not causing toxicity. However, there are a number of significant technical difficulties that can readily make this chemically based approach unreliable.

One of the difficulties with this approach is that the aquatic chemistry of pyrethrin is such that it tends to sorb (attach) to particulate matter, which can detoxify the pesticide. Since the analytical methods used measure total concentrations of the pesticide, they include nontoxic forms. In addition, it has been found that pyrethroid-type pesticides interact with dissolved organic carbon (DOC), which also detoxifies that portion of the pesticide that has interacted with DOC. These issues were reviewed by Gan et al. (2006). Both of these components of the aquatic chemistry of pyrethrin make the estimates of aquatic life toxicity based on chemical measurements of concentrations unreliable.

Another component of the aquatic chemistry of pyrethrin pesticide is that the pesticide, in attaching to particulate matter, settles to the waterbody sediments, and thereby causes aquatic life toxicity to sediment-associated organisms. The work of D. Weston and his associates at UC Berkeley (Amweg et al. 2006) have demonstrated the importance of this component of pyrethroid-based pesticide toxicity. The toxicity in the sediments is a function of the total organic carbon (TOC) of the sediments. The recent article by Raloff (2006) provides additional discussion of these issues.

The aerial spraying of pyrethrin to control West Nile Virus mosquito vectors included spraying piperonyl butoxide (PBO). PBO is a chemical that enhances the toxicity of pyrethrin and other pyrethroid pesticides. LWA made a significant error in their approach for assessing the significance of PBO in affecting aquatic life toxicity, where it focused on whether the PBO caused toxicity. Those knowledgeable about the toxicity of pyrethroids know that the issue is not the toxicity of PBO, but the impact of PBO in enhancing the toxicity of pyrethroid-based pesticides. This enhancement occurs at much lower concentrations than those that are toxic to aquatic life. Again, there is no method to chemically assess the impact of PBO on pyrethrin-based toxicity. It has to be done through measurement of aquatic life toxicity.

Overall, the chemically based approach, which evidently is what the CVRWQCB staff is attempting to develop for regulating pesticides, can readily lead to inappropriate regulation, since, as was done by LWA, it can lead to an incorrect assessment of aquatic life toxicity. The approach that needs to be followed in regulating pesticides is to base the regulations on aquatic life toxicity assessment in the water column and sediments.

Aquatic Life Beneficial Use Assessment

A second objective of the proposed Basin Plan Amendment is to establish aquatic life beneficial uses in Central Valley streams that do not have a designated beneficial use. As discussed at the meeting, this approach involves conducting bioassessments in various streams in the Central Valley to establish that there is, at least at times, aquatic life in the streams. As I pointed out at the staff meeting, this approach is a waste of time and money. There is no issue as to whether there are some forms of aquatic life in streams when there is water present. There is no need to spend taxpayers' money proving what is obvious.

Pesticide Risk Assessment

I have been following the approach that the CVRWQCB staff have been using to develop a “pesticide risk assessment.” This approach is similar to the approach that I developed and used in my work for the Santa Ana Regional Water Quality Control Board in the late 1990s (see Lee and Taylor 2001), in which I was concerned about identifying the cause of unknown-caused toxicity found in stormwater runoff in the Upper Newport Bay watershed. One of the issues that apparently is not being adequately considered by the CVRWQCB staff is that very small county-wide annual use amounts (a few thousand pounds) of some pesticides can cause significant aquatic life toxicity in waterbodies. Apparently, the screening process used by the CVRWQCB does not adequately consider this situation, where some of the more highly toxic but limited-use pesticides are not being considered to be a significant cause of aquatic life toxicity in the Central Valley.

Another problem with the approach used by the CVRWQCB staff in the development of a risk assessment for pesticides is the lumping together into one database/evaluation, toxicity to aquatic animal life and toxicity to plants (algae). Although toxicity to zooplankton, fish and benthic invertebrates is potentially significant in adversely affecting the beneficial uses of a waterbody, toxicity to algae in many of the waterbodies in the Central Valley of California is not adverse to the beneficial uses of the waterbody, since many of these waterbodies have excessive growths of algae that, in themselves, are significantly impairing water quality/beneficial uses. While toxicity to algae is a technical violation of the Basin Plan, it is questionable that the Board will require the control of pesticides (herbicides) that are found in waterbodies with excessive growths of algae. On several occasions I have suggested to the CVRWQCB staff that they need to separate the databases for aquatic life toxicity to animals from those to plants. Thus far they have not acted on my suggestions.

Sediment Quality Criteria

The Fact Sheet mentions that, “*Both potential narrative and numeric sediment quality criteria will be considered,*” as part of developing a Basin Plan Amendment for pesticides. Specific mention was made of considering approaches that other states are using – specifically, the state of Florida – in developing sediment quality standards. I am familiar with the state of Florida’s technically invalid approach for developing sediment quality standards. It is based on total concentrations of a chemical and co-occurrence with toxicity. Such an approach is well known to be technically invalid. This is another example of the CVRWQCB staff’s not being familiar with the literature, and especially the work that is being done at the State Water Board level, in developing sediment quality criteria for the state of California. Spending taxpayer funds to review the literature on developing sediment quality criteria for pesticides is another waste of time and money. It could readily result in technically invalid approaches being adopted by the CVRWQCB, such as the so-called “co-occurrence-based” approaches that are in the literature.

As discussed by Jones-Lee and Lee (2005) and in literature by others cited therein, chemically based sediment quality criteria are unreliable for assessing the potential for chemicals in the sediments, including pesticides, to cause aquatic life toxicity. Again, as with water column toxicity, a reliable approach must be based on assessing aquatic life toxicity through toxicity measurements. In addition, an assessment of the benthic organism assemblages present in a waterbody’s sediments relative to the habitat characteristics should be included in assessing the

potential impacts of a chemical or group of chemicals associated with sediments on water-quality-related beneficial uses of a waterbody.

Chris Beegan of the State Water Board staff has been working on developing sediment quality objectives for California marine waters over the past two years. This work is being conducted under the guidance of a national expert panel that has helped shape the State Board's sediment quality objective development approach. The State Board staff team and the expert panel have held periodic meetings, which are open to anyone interested, to discuss current progress toward sediment quality objective development. I have been a participant in these meetings. While, initially, considerable emphasis was being placed on the use of chemically based assessment approaches, currently, the emphasis has shifted to biologically based assessment approaches, with chemically based assessments only being used as an indicator of the potential significance of a chemical. Even this use is recognized as frequently being unreliable. The problem is one that has been understood for over 30 years – namely, that chemicals exist in aquatic sediments in a variety of forms, only some of which are toxic/available. Biologically based approaches must be used to reliably assess toxicity/availability.

Bill Jennings has been instrumental in having the State Water Resources Control Board (SWRCB) make available \$2.5 million to expand the development of sediment quality objectives to the Delta. This work is to be initiated this year, with the first meeting to discuss approaches to take place in March. Rather than the CVRWQCB staff trying to develop sediment quality objectives for pesticides on a “crash” basis to fit within the limited timeframe that has been proposed for developing the pesticide Basin Plan Amendment, it would be far more appropriate to stop any work along this line as part of the Basin Plan Amendment, and become active in the SWRCB's efforts to develop sediment quality objectives for Delta waters. Such objectives could be applicable to other waterbodies in the Central Valley.

Source Assessment and Loading Capacity Analysis

The CVRWQCB staff responsible for developing the pesticide Basin Plan Amendment approach propose to use “models” to assess the allowable loading capacity for pesticides discharged to Central Valley waterbodies. As the individual responsible for developing and then chairing for a number of years the ASTM Pesticide Fate and Transport Modeling subcommittee, I (G. F. Lee) am familiar with the problems with trying to develop reliable modeling approaches for pesticides. Basically, there is no model available, nor will one likely be developed, that can develop reliable predictions of the allowed loading of a pesticide to a waterbody without a massive waterbody-specific study. While it is possible to develop so-called models that are alleged to be useful for this purpose, these are nothing more than computer game-playing, which have little or no reliable predictive capability. This is another component of the staff's proposed approach for developing a Basin Plan Amendment that will not provide reliable information upon which to regulate pesticides in the Central Valley.

Management Practice Alternatives

Another component of the pesticide Basin Plan Amendment development approach is an assessment of the management practice alternatives. In 2002, under contract with the SWRCB on behalf of the CVRWQCB, we (Lee and Jones-Lee 2002) conducted a detailed review of the literature pertinent to evaluating management practices for nonpoint source pollutants in the

Central Valley. Since developing this report I have been following closely the work that is being done by the Ag Waiver Program that is pertinent to the issue of evaluating management practices for controlling pesticides and other potential pollutants in stormwater runoff to Central Valley waterbodies. Little progress has been made and, for that matter, will be made for a number of years, in reliably evaluating potentially effective management practices for controlling pesticides in stormwater runoff and irrigation tailwater discharges in the Central Valley. This situation will not change significantly within the timeframe that is being allowed for development and implementation of the pesticide Basin Plan Amendment.

Overall Assessment

The current CVRWQCB staff's proposed approach for developing a Basin Plan Amendment that can be used for regulating pesticides in the Central Valley has highly significant technical problems that will cause it to fail to develop reliable approaches for controlling aquatic life toxicity in Central Valley waterbodies associated with the use of pesticides in this area. As discussed above, a number of the components of this proposed approach fail to adequately and reliably consider the complexity of the issues that are well known to affect pesticide-caused aquatic life toxicity. If the Board staff proceed with this approach, it will almost certainly lead to justifiable litigation against the Board for attempting to use technically invalid approaches for regulating pesticides.

Need for Pesticide TMDL Compliance Monitoring Programs

When the CVRWQCB adopted the OP pesticide TMDL for the San Joaquin River, Bill Jennings and I independently indicated to the Board that the CVRWQCB staff's approach of tying the compliance monitoring for the San Joaquin River OP pesticide TMDL to the Ag Waiver monitoring was inappropriate. Subsequently, I developed a discussion (Lee 2005a) of the inappropriateness of the Board's adopting this TMDL without requiring that the staff develop an approach for compliance monitoring of the TMDL requirements which was not tied to the Ag Waiver monitoring program that was yet to be developed. I have been closely following the development of the Ag Waiver water quality monitoring program. It is clear that it will be years before that program will likely become effective in adequately monitoring the San Joaquin and Sacramento River systems in order to evaluate compliance with the TMDLs that have been adopted by the Board for regulating OP-pesticide-caused aquatic life toxicity. As I have suggested, the staff responsible for developing pesticide regulatory approaches should immediately develop a stand-alone compliance monitoring program for TMDL implementation. If and when the Ag Waiver monitoring program develops a credible aquatic life toxicity monitoring program, then the two monitoring programs could be integrated. As it stands now, there will be a lack of adequate implementation of compliance monitoring for the TMDLs. Work along this line would be a far more important and effective approach for regulating pesticide-caused aquatic life toxicity than the approaches proposed by the staff in developing a Basin Plan Amendment for pesticides. This should be a high priority for the CVRWQCB "pesticide" staff.

Proactive Approach for Controlling Pesticide-Caused Aquatic Life Toxicity

Several years ago, as part of participation in the Sacramento River Watershed Program OP pesticide toxicity subcommittee, where there was considerable discussion about how to regulate aquatic life toxicity due to the use of new or expanded-use pesticides, we developed (Jones-Lee

and Lee 2000, Lee 2001) a proactive approach for screening new or expanded-use pesticides for their potential to cause aquatic life toxicity. Basically we recommended that the CVRWQCB, with the cooperation of the Department of Pesticide Regulation, establish a proactive approach for screening the initial uses of new or expanded-use pesticides in the Central Valley. This approach involves conducting field studies associated with the initial uses of new or expanded-use pesticides, where stormwater runoff and fugitive and tailwater discharges would be monitored to determine if the receiving waters for this runoff/discharge are toxic to aquatic life. This approach would specifically address the deficiencies in the US EPA Office of Pesticide Programs' failure to incorporate fate and transport information as part of registering/labeling pesticides for use under conditions where stormwater runoff or water discharges from the use area could transport pesticides into receiving waters and thereby cause aquatic life toxicity in these waters. This proactive approach could be funded by the pesticide manufacturers/formulators and those who wish to use these pesticides in the Central Valley. Initial-use and periodic studies of this type would detect problematic pesticides before widespread use occurs. If the CVRWQCB staff focused their efforts on developing this approach, it would be far more effective than the proposed Basin Plan Amendment approach for controlling aquatic life toxicity associated with new or expanded-use pesticides. Additional information on issues pertinent to regulating new or expanded-use pesticides has been presented in the *Stormwater Runoff Water Quality Newsletter* (Lee 2005b).

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Comment Letter 4

Warren Tellefson, Executive Officer for the Central Valley Clean Water Association

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CVCWA Central Valley Clean Water Association

Representing Over Forty Wastewater Agencies

STAN DEAN – CHAIR, SRCSD STEVE WILSON – VICE CHAIR, CERES
JACQUE McCALL – SECRETARY, VACAVILLE MICHAEL BERKLICH – TREASURER, TURLOCK

March 14, 2006

Mr. Joe Karkoski, Chief
Pesticide TMDL Unit
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, California 95670

RE: **COMMENTS ON CEQA SCOPING MEETING**
WATER QUALITY CONTROL PLAN, SAC AND SAN JOAQUIN BASINS
CONTROL OF PESTICIDES

Dear Mr. Karkoski:

The Central Valley Clean Water Association (CVCWA) submits the following comments in response to the Regional Water Board's *Notice of California Environmental Quality Act (CEQA) Scoping Meeting and Public Workshop on the Development of Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to Control the Discharge of Pesticides*. We have reviewed the Regional Board's presentation materials and commend the Regional Board on the broad scope of the proposed Basin Plan Amendment (BPA).

CVCWA is an association of local public agencies providing wastewater collection, treatment and water recycling services throughout the Central Valley region. While pesticides are not usually perceived as a wastewater issue, the detection of pesticides in wastewater effluent can create the imposition of stringent permit requirements. Thus, CVCWA's members may be directly impacted by the adoption of water quality objectives for pesticides. Because of this potential impact, CVCWA provides the following comments to the Regional Water Board for consideration as the Board moves forward with a BPA for pesticides.

First, CVCWA requests that the Regional Water Board involve CVCWA as a stakeholder in this process. As mentioned above, CVCWA's members receive water quality based effluent limits based on adopted water quality objectives. Thus, CVCWA is interested in the adoption of new water quality objectives in general, and pesticides in

CEQA SCOPING COMMENTS

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particular. Especially since CVCWA has little control over the input of pesticides into the wastewater system and therefore may be obligated to meet pesticide limits through advanced treatment processes.

Second, CVCWA requests that the Regional Board comply with the intent and the specific requirements of the California Water Code when adopting water quality objectives. In other words, the specific requirements for adopting water quality objectives (Ca. Water Code §§13241-13242) must be applied consistently with the California Legislature's intent, which is to balance the needs of maintaining high quality water against all of the demands being placed on the water. (Ca. Water Code, § 13000.) Most importantly, the Regional Board must balance the economic considerations against the environmental impacts associated with achieving the objective.

Third, CVCWA understands that the Regional Board may consider adopting a narrative water quality objective for sediments as part of the BPA. In CVCWA's experience, the adoption and application of narrative water quality objectives often overlook the requirements contained in Water Code sections 13241 and 13242. Sections 13241 and 13242 apply to the adoption of any water quality objective, regardless of the nature of the objective. Therefore, the Regional Board must consider all of the factors outlined in Water Code section 13241 when adopting a narrative objective, and must prepare a program of implementation as required by Water Code section 13242. Furthermore, the Regional Board must carefully articulate how the Regional Board intends to interpret the narrative objective and consider the factors of Water Code section 13241 in relationship to the interpretation. CVCWA and others have been critical in the past of the Regional Board interpreting narrative water quality objectives as a way to avoid the consideration of economics, water quality conditions that can be reasonably achieved and the other factors contained in Water Code section 13231.

Overall, CVCWA commends the Regional Board for considering the adoption of numeric water quality objectives for pesticides instead of continuing to rely solely on the narrative objectives currently contained in the Basin Plan. CVCWA continues to encourage the development of specific numeric objectives in accordance with the sound policy provisions contained in the California Water Code prior to the imposition of permit requirements. Thank you for your consideration. Also, would you please confirm receipt of this letter by email to cvcwa@placer.ca.gov.

Sincerely,

Warren Tellefson
Executive Officer

T:\FAC\CVCWA\905.5\CEQA SCOPING-CONTROL OF PESTICIDES

Comment Letter 5

Nicholas N. Poletika, Ph.D., Research Scientist, Dow AgroSciences LLC

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March 17, 2006

VIA ELECTRONIC MAIL

Joe Karkoski
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**RE: DOW AGROSCIENCES COMMENTS ON THE SACRAMENTO AND SAN
JOAQUIN RIVER WATERSHEDS PESTICIDE BASIN PLAN AMENDMENT**

Dear Mr. Karkoski:

On behalf of Dow AgroSciences (DAS), I submit the following CEQA scoping comments on the Sacramento and San Joaquin River Watersheds Pesticide Basin Plan Amendment.

DAS is the primary registrant of chlorpyrifos, an important pest control material widely relied upon by California agriculture. Chlorpyrifos has been linked to water quality concerns in urban and agricultural discharge, and DAS has worked closely with the Regional Board and the Department of Pesticide Regulation over several years to monitor and analyze pesticide residue data, to address the areas of exceedence and to develop: a) application; b) in-field management practices; and c) label amendments and restrictions all designed to address those occurrences. Consequently, water quality exceedences have significantly reduced in level and frequency. DAS is also closely coordinating with the agricultural waiver watershed coalitions regarding their monitoring of agricultural return flow and identification of management practices to address water quality issues.

DAS appreciates the recent workshops the Regional Board held to introduce and explain this proposed Basin Plan Amendment process and looks forward to future opportunities to comment on the program as it develops. Specific comments on the material presented in the February 2 public workshop in Modesto follow.

Water Quality Criteria Development

DAS supports the Regional Board's intention to evaluate newer methods of deriving water quality criteria to reflect recent developments in the science. It is understandable that the

Regional Board is looking for a method that can handle limited data sets, as this situation can exist for some pesticides. However, it is equally important to consider methods that can take advantage of robust data sets such as the one available for chlorpyrifos. The 1985 USEPA guidelines¹ were a good start and can now be updated with methodology that considers probability of both exposure and effect, ecological relevance, and multiple lines of evidence.² DAS has made comments previously on this subject in the context of the Regional Board's June 21, 2001 target analysis for diazinon and chlorpyrifos and reiterates the position below.

To frame the comments, the following key points relate to protection of water quality:

- Reasonable protection of beneficial uses requires the ability to detect an actual impairment, should it occur.
- Therefore, all scientific issues involving derivation of water quality criteria and objectives should revolve around methods to define impairment of freshwater habitat uses that support warm or cold water ecosystems at the ecosystem level of interpretation.
- As stated in the authoritative National Research Council NRC report on the scientific basis of the TMDL approach to water pollution reduction,³ multiple lines of evidence are necessary to detect impairment of beneficial uses and evaluate the health of aquatic ecosystems.
- According to USEPA guidelines, protection of the most sensitive aquatic organisms at all times and in all places is not necessarily required to achieve reasonable protection of beneficial uses at the ecosystem level. Some slight perturbation of aquatic systems is acceptable.⁴

Consistent with these key points are alternative numeric criteria that can be derived for chlorpyrifos using available data, following approaches allowed by current EPA guidance and

¹ Stephan, C.E., Mount, D.I., Hansen, D.J., Gentile, J.H., Chapman, G.A., and Brungs, W.A. 1985. Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses. United States Environmental Protection Agency, PB85-227049.

² An additional line of evidence not specifically mentioned in these comments is the biological status of water bodies, which is addressed through biological monitoring and physical habitat assessment. DAS supports this approach, as does the USEPA Office of Water, and encourages the Regional Board to continue developing biological monitoring data to assist in determining whether water quality impairments exist and to help identify stressors responsible for actual impairments. See also the NRC report.

³ NRC (National Research Council). 2001. Assessing the TMDL Approach to Water Quality Management. Report of the Committee to Assess the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction, Water Science and Technology Board, Division on Earth and Life Studies, National Academy Press, Washington, DC. <http://books.nap.edu/html/tmdl/>

⁴ Quotation from reference in Footnote 1. *"Because aquatic ecosystems can tolerate some stress and occasional adverse effects, protection of all species at all times and places is not deemed necessary. If acceptable data are available...a reasonable level of protection will probably be provided if all except a small fraction of the taxa are protected, unless a commercially or recreationally important species is very sensitive...The data are used to determine the highest (acute and chronic) concentrations that should not result in unacceptable effects on aquatic organisms and their uses".*

methods found in recent peer-reviewed literature. They are summarized in the table below and explained in the accompanying text.

Method	Proposed Chlorpyrifos Criteria (ng/L)	
	Acute	Chronic
PERA Method ⁵	32 (5 th percentile), 102 (10 th percentile) (all species)	NA
Site-Specific PERA ⁶	63 (5 th percentile), 159 (10 th percentile) (all lotic invertebrates)	NA
Microcosm/Mesocosm “ecosystem” LOEC ⁷	1000	1000
Microcosm/Mesocosm cladoceran LOEC	100	100
Site-Specific 304(a) Guidance (USEPA Method as used by EPA)	79	45
Multiple Lines of Evidence LOEC (PERA, USEPA Method FAV, Microcosm/Mesocosm, Measured Frequency and Duration)	100-148	100-148

The first method, found frequently in the published literature, is probabilistic ecological risk assessment (PERA). The second is site-specific PERA. The third comes directly from analysis of model ecosystem studies (microcosm/mesocosm). The fourth is a site-specific criterion calculated using the USEPA method.

Site-specific approaches are very relevant to the Sacramento and San Joaquin River systems. Many invertebrates inhabiting lentic water bodies such as mosquitoes and cladocerans are extremely sensitive to chlorpyrifos and drive down the target generated by either PERA or the USEPA method. These invertebrates found in lentic habitat are minor components of the ecosystems of interest in both the mainstem and tributaries of the lotic river systems requiring

⁵ Giesy, J.P., Solomon, K. R., Coates, J.R., Dixon, K. R., Giddings J. M., and Kenega E. E. 1999. Chlorpyrifos: Ecological Risk Assessment in North American Aquatic Environments. *Rev Environ Contam Toxicol* 160: 1-129. The authors concluded that a chronic endpoint was not necessary to conduct the assessment, because the exposure profile was consistently acute in nature.

⁶ Appendix A.

⁷ No Observed Effect Concentration (NOEC) from Giddings, J. M. 1993. Chlorpyrifos (Lorsban 4E): Outdoor Aquatic Microcosm Test for Environmental Fate and Ecological Effects. Report 92-6-4288. Springborn Laboratories, Wareham, MA.

protection. They do not appear to be present in these lotic habitats in large numbers,⁸ nor do they constitute important dietary components of fish inhabiting this system.⁹

The multiple lines of evidence approach is probably the most reliable method for generating a water quality target, because it embodies evidence from different sources and methods which converge to very similar numbers. For chlorpyrifos, the multiple lines of evidence consist of the USEPA FAV method as updated for the Great Lakes Initiative, PERA, and microcosm/mesocosm studies. The acute and chronic numbers are approximately the same for the multiple lines of evidence method. In microcosm/mesocosm studies, rapid recoveries of affected sensitive invertebrate populations occur with either single or multiple dose exposure regimes. Thus, these studies tend to give a single LOEC representative of either single (acute) or repeated (“chronic”) exposures.

Sediment Quality Criteria Development

The establishment of narrative sediment quality objectives is appropriate as a method to screen for potential impairment of sediment quality, but any possible future regulatory action should take into account the program of the State Board to develop sediment quality objectives. Methodology should be consistent among State programs charged with protecting the same resource.

Thank you for the opportunity to comment on the proposed Basin Plan Amendment.

Respectfully submitted,



Nicholas N. Poletika, Ph.D.
Research Scientist
Dow AgroSciences LLC

⁸ Harrington, J. and Born, M. 2000. Measuring the Health of California Streams and Rivers, A Methods Manual for: Water Resource Professionals, Citizen Monitors, and Natural Resource Students. Second edition. Sustainable Land Stewardship International Institute, Sacramento, CA.

⁹ Giddings, J.M., Hall Jr., L.W., and Solomon, K.R. 2000. Ecological Risks of Diazinon from Agricultural Use in the Sacramento-San Joaquin River Basins, California. *Risk Analysis* **20**:545-570.

Appendix A. Calculations for Site-Specific Criteria

Site-Specific PERA¹⁰

Table 1. Acute toxicity distribution for lotic aquatic freshwater invertebrates exposed to chlorpyrifos

Organism	Latin Name	SMAV (ng/L)	Rank	Rank (%)
Amphipod	<i>Gammarus pulex</i>	70	1	2.9
Amphipod	<i>Gammarus lacustris</i>	110	2	5.9
Mysid	<i>Neomysis mercedis</i>	150	3	8.8
Amphipod	<i>Gammarus pseudolimnaeus</i>	245	4	11.8
Mayfly	<i>Cloen dipterum</i>	250	5	14.7
Amphipod	<i>Gammarus fasciatus</i>	320	6	17.6
Stonefly	<i>Pteronarcella badia</i>	380	7	20.6
Mayfly	<i>Emphemerella sp</i>	400	8	23.5
Stonefly	<i>Claassenia sabulosa</i>	570	9	26.5
Caddisfly	<i>Leptoceridae sp</i>	900	10	29.4
Diptera	<i>Paratanytarsus sp</i>	1600	11	32.4
Planaria	<i>Dugesia dorotocephala</i>	2000	12	35.3
Diving Beetle	<i>Laccophilus fasciatus</i>	2100	13	38.2
Isopod	<i>Asellus aquaticus</i>	2700	14	41.2
Mayfly	<i>Caenis horaria</i>	3000	15	44.1
Midge	<i>Chricotopus sp</i>	3500	16	47.1
Dragonfly	<i>Crocothemis erthryaea</i>	5800	17	50.0
Crayfish	<i>Orconectes immunis</i>	6000	18	52.9
Ostracod	(not specified)	6300	19	55.9
Midge	<i>Dicrotendipes californicus</i>	7000	20	58.8
Ostracod	<i>Cyprinotus incongruens</i>	10000	21	61.8
Stonefly	<i>Pteronarcys californica</i>	10000	22	64.7
Stonefly	<i>Claassenin sp</i>	20000	23	67.6
Isopod	<i>Proasellus coxalis</i>	20000	24	70.6
Crayfish	<i>Procambarus clarki</i>	21000	25	73.5
Blackfly	<i>Simulium vitattum</i>	27000	26	76.5
Mayfly	[<i>Heptageniidae</i>]	29000	27	79.4
Caddisfly	<i>Hydropschy/</i>	30600	28	82.4
	<i>Cheumatopsyche sp</i>			
Backswimmer	<i>Notonecta undulata</i>	35200	29	85.3
Oligochaete	<i>Limnodrilus hoffmeisteri</i>	36000	30	88.2
Snail	<i>Bithynia tentaculata</i>	94000	31	91.2
Diving Beetle	<i>Hydrophylus spp</i>	100000	32	94.1
Snail	<i>Helisoma trivolvis</i>	2000000	33	97.1

¹⁰ See also Poletika, N.N., Woodburn, K.B., and Henry, K.S. 2002. An ecological risk assessment for chlorpyrifos in an agriculturally dominated tributary of the San Joaquin River. *Risk Analysis* 22:291-308.

Sources:

Merritt, R.W., Cummins, K.W. 1996. An Introduction to the Aquatic Insects of North America. 3rd edition, Kendall/Hunt Publishing Company, Dubuque, Iowa.

Pennak, R.W. 1989. Fresh-Water Invertebrates of the United States. 3rd edition, John Wiley & Sons, New York.

Thorp, J.H., Covich, A.P. 1991. Ecology and Classification of North American Freshwater Invertebrates,” Academic Press, Inc., San Diego.

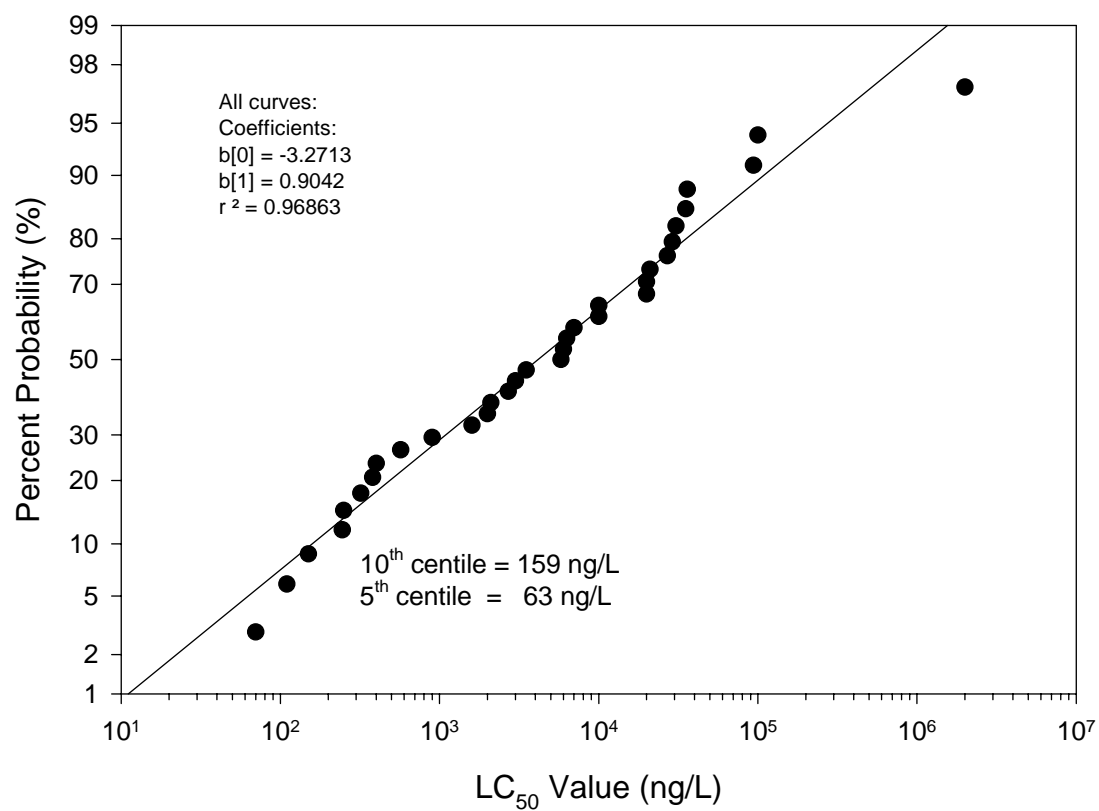


Figure 1. Plotted Acute Toxicity Distribution for Lotic Aquatic Freshwater Invertebrates Exposed to Chlorpyrifos and Best-Fit Linear Regression

Site-Specific 304(a) Guidance (USEPA Method as used by EPA)

Lotic Freshwater Organisms: Acute Toxicity Data taken from Table 1 of Barron and Woodburn (1995)

Organism	Taxonomic Name	Time (d)	Endpoint	Acute Value (ng/L)	GMAV Value (ng/L)	GMAV Rank	GMAV %Rank
Mysid	<i>Neomysis mercedis</i>	4	LC50	150	150	1	3.4
Amphipod	<i>Gammarus species</i>	4	LC50	70	165	2	6.9
Mayfly	<i>Cloen dipterum</i>	3	LC50	250	250	3	10.3
Stonefly	<i>Pteronarcella badia</i>	4	LC50	380	380	4	13.8
Mayfly	<i>Emphemerella sp.</i>	2	LC50	400	400	5	17.2
Caddisfly	<i>Leptoceridae sp</i>	2	LC50	900	900	6	20.7
Diptera	<i>Paratanytarsus sp.</i>	1	LC50	1600	1600	7	24.1
Planaria	<i>Dugesia dorotocephala</i>	7	LC50	2000	2000	8	27.6
Diving Beetle	<i>Laccophilus fasciatus</i>	1	LC50	2100	2100	9	31.0
Isopod	<i>Asellus aquaticus</i>	4	EC50	2700	2700	10	34.5
Mayfly	<i>Caenis horaria</i>	4	LC10	3000	3000	11	37.9
Stonefly	<i>Claassenia species</i>	4	LC50	570	3376	12	41.4
Midge	<i>Chricotopus sp.</i>	1	LC50	3500	3500	13	44.8
Dragonfly	<i>Crocothemis erthryaea</i>	1	LC50	5800	5800	14	48.3
Crayfish	<i>Orconectes immunis</i>	4	LC50	6000	6000	15	51.7
Midge	<i>Dicortendipes californicus</i>	1	LC50	7000	7000	16	55.2
Ostracod	<i>Cyprionotus incongruens</i>	4	LC50	10000	10000	17	58.6
Stonefly	<i>Pteronarcys californica</i>	4	LC50	10000	10000	18	62.1
Isopod	<i>Proasellus coxalis</i>	4	EC50	20000	20000	19	65.5
Crayfish	<i>Procambarus clarki</i>	4	LC50	21000	21000	20	69.0
Blackfly	<i>Simulium vitatum</i>	1	LC50	27000	27000	21	72.4
Mayfly	[Heptageniidae]	1	LC50	29000	29000	22	75.9
Caddisfly	<i>Hydropschy/Cheumatopsyche sp.</i>	1	LC50	30600	30600	23	79.3
Backswimmer	<i>Notonecta undulata</i>	1	LC50	35200	35200	24	82.8
Oligochaete	<i>Limnodrilus hoffmeisteri</i>	4	EC10	36000	36000	25	86.2
Snail	<i>Bithynia tentaculata</i>	10	LC50	94000	94000	26	89.7
Diving Beetle	<i>Hydrophylus spp.</i>	1	LC50	100000	100000	27	93.1
Snail	<i>Helisoma trivolvis</i>	3	LC50	2000000	2000000	28	96.6
Other species data used in GMAV calculation:							
Stonefly	<i>Claassenin sp.</i>	3	LC50	20000	20000	4	400.0
Amphipod	<i>Gammarus fasciatus</i>	4	LC50	320	320	10	1000.0
Amphipod	<i>Gammarus lacustris</i>	4	LC50	110	110	11	1100.0
Amphipod	<i>Gammarus pseudolimnaeus</i>	2	LC50	300	245	12	1200.0

FAV Calculation using Stephan et al. (1985) methodology:

		Rank	GMAV (ng/L)	Ln GMAV	Ln GMAV ²	(P) Cumulative Probability	Sq. Root of Probability
Mysid	<i>Neomysis mercedis</i>	1.000	150	5.011	25.106	0.034	0.1857
Amphipod	<i>Gammarus species</i>	2.000	165	5.105	26.064	0.069	0.2626
Mayfly	<i>Cloen dipterum</i>	3.000	250	5.521	30.487	0.103	0.3216
Stonefly	<i>Pteronarcella badia</i>	4.000	380	5.940	35.286	0.138	0.3714
				21.578	116.942	0.345	1.141
		S ² =		28.4274			
		S =		5.3317			
		L =		3.8731			
		A =		5.0674			
CA Dept F&G		FAV =		159	ng/L	CMC (ng/L) =	79
ACR =		FCV =		45	ng/L	CCC (ng/L) =	45
		3.5					

Comment Letter 6

Kerry Schmitz, Senior Civil Engineer, County of Sacramento Municipal Services Agency

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Municipal Services Agency

**Department of Water
Resources**

Keith DeVore, Director



**County of
Sacramento**

Terry Schutten, County Executive

Cheryl Creson, Agency
Administrator

March 17, 2006

Mr. Joe Karkoski

California Regional Water Quality Control Board, Central Valley Region

11020 Sun Center Drive, Suite 200

Ranch Cordova, CA 95670

(via e-mail)

**Subject: Comments on CEQA Scoping Documents for Control of Pesticide Discharges
in the San Joaquin and Sacramento River Basins**

Dear Mr. Karkoski:

Thank you for this opportunity to comment on the CEQA scoping documents for the Water Board's process to develop a Pesticides Basin Plan Amendment (BPA) to control discharges of pesticides in the San Joaquin and Sacramento River basins. These comments are being submitted by Sacramento County on behalf of the stormwater programs of the County of Sacramento and the Cities of Citrus Heights, Elk Grove, Folsom, Galt, Rancho Cordova, and Sacramento (collectively Permittees). The Permittees are subject to a Municipal Stormwater Permit issued by the Central Valley Regional Water Quality Control Board under the Federal Clean Water Act National Pollutant Discharge Elimination System (NPDES). The Municipal Stormwater Permit requires the Permittees to reduce the discharge of pollutants, including pesticides, from the storm drain system into receiving waters.

The Permittees understand the importance of this issue, and are interested in supporting the Water Board in developing an approach to the issue that is both technically sound and represents good public policy. In general, the Permittees support the scope of the Water Board's proposed approach as outlined in the scoping meeting and public workshop held in Rancho Cordova on February 9th, although we have concerns and comments as expressed below.

Pesticide Regulation by State and U.S. EPA are Critical

Recent experience with diazinon, chlorpyrifos, and pyrethroids has demonstrated that the legal use of pesticides registered by the State Department of Pesticide Regulation (DPR) and U.S. EPA can and does result in contamination of urban runoff and impairment of urban receiving waters. However, local agencies are pre-empted under State law from exercising local regulatory authority over pesticide uses that cause impairments. As a result, municipalities are at a severe

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Drainage Operations & Maint.: 3847 Branch Center Rd. #4, Sacramento, CA 95827 • (916) 875-RAIN • fax (916) 875-7160

disadvantage when attempting to limit the discharge of pesticides in urban runoff to receiving waters.

The strategy for controlling pesticides in urban runoff must include efforts to improve evaluation and mitigation of potential water quality impacts as part of the pesticide regulatory process, which includes risk assessment, pesticide registration, re-registration, and re-evaluation at the Federal and State levels. For local stormwater agencies, compliance with pesticide TMDLs may be technically infeasible or prohibitively expensive, unless legal uses are adequately evaluated for potential water quality impacts, and appropriate restrictions are imposed during the registration process.

The recent Water Quality Attainment Strategy and TMDL for diazinon and pesticide-related toxicity in Bay Area urban creeks, and the associated Basin Plan Amendment produced by the San Francisco Bay Regional Water Quality Control Board, do a good job of addressing this issue, as they call out specific implementation actions for both USEPA and the California Department of Pesticide Regulation (DPR) to better evaluate and address water quality impacts of pesticides. We believe that to be truly effective in addressing pesticide contamination, the Sacramento/San Joaquin Pesticides BPA should adopt this strategy. As in the Bay Area, these documents should specifically call upon USEPA and DPR to thoroughly and routinely address potential water quality impacts of pesticides, consistent with the goals and methodology of the Federal Clean Water Act, as part of the pesticide regulatory process.

We recognize that adequate evaluation of pesticide impacts requires significant resources. However, the costs of studies needed to assess and mitigate potential water quality impacts, including the development of water quality criteria to protect aquatic life in both sediments and the water column, should be principally borne by prospective registrants during the pesticide registration process. Although this approach is authorized by current pesticide regulations at the State and Federal levels, it is not current practice, and the Pesticides BPA should call for its implementation by DPR and U.S. EPA.

A study entitled “Improving Urban Pesticide Regulatory Activities to Protect Water Quality” was conducted in 2005 as part of the Bay Area’s Urban Pesticide Pollution Prevention Project. This study may be very helpful in developing specific recommendations to be included in the Pesticides BPA.

Generation of the “Target List”

The relative risk evaluation relies on DPR PUR data from 1992-2001 for generation of the initial target list of pesticides. We understand the difficulties of conducting such an evaluation for a very broad group of chemicals used in a wide range of uses and geographic locations. However, we believe that there is room for improvement in the details of your approach, and believe that it should be refined to address the concerns listed below:

1. Pesticide use patterns have changed dramatically since 2001, when USEPA banned most allowable urban uses of diazinon.
2. Unreported pesticide uses are not included in the PURs. Information based on DPR’s pesticide sales database should be used to estimate unreported uses overall pesticide use.
3. Agricultural uses and urban uses are evaluated together; an analysis of relative risk within these two broad areas would be more meaningful, and would be a better tool for identifying priorities.

Data from available studies should be considered in the generation of the target list. This should include assessment of monitoring data produced in the region, including that planned for the subject Pesticides BPA. For instance, recent studies have identified significant threats to sediment quality in agricultural and urban streams. In addition, we suggest that the Board utilize the findings of the study “Insecticide Market Trends and Potential Water Quality Implications”, which was developed in 2004 for the San Francisco Estuary Project.

Water Quality Criteria Development

We question the emphasis being placed on research and development of water quality criteria for diazinon and chlorpyrifos. Such criteria already exist, and USEPA has recently finalized revised criteria for diazinon. The Water Board also recently adopted a TMDL for control of diazinon in the Sacramento/Feather Rivers, and another TMDL for control of diazinon and chlorpyrifos in urban runoff from the Sacramento urban area. While it would be useful to adjust the published water quality criteria for diazinon and chlorpyrifos to the actual conditions of specific local waters, Water Board staff have indicated that such an effort is beyond the scope of this process. With limited funds and resources, and with many other pesticides of potential concern lacking water quality criteria, the Water Board’s emphasis on diazinon and chlorpyrifos in the current context appears to be duplicative and unnecessary. Emphasis would be better placed on other pesticides that appear prevalent in recent pesticide use reports, or that are implicated in scientific studies as causes of (potential) water quality impacts. Priority should be given to pesticides for which monitoring data indicate potential for significant water quality impacts, and especially those that are currently undergoing re-evaluation at DPR due to evidence of potential water quality impacts.

Responsibility for assessment of potential water quality impacts and conduct of studies necessary to develop relevant water quality criteria should be borne principally by the registrants, and reviewed and acted upon by USEPA in the pesticide registration process.

Sediment Quality Criteria Development

The work plan should specifically call for coordination of the regional efforts to develop sediment quality criteria with the process being undertaken by the State Board. In addition, Regional Board staff appear to be aware of recent research on sediment quality and pesticide toxicity in Central Valley creek sediments; this research should be considered and incorporated into the Water Board’s Pesticides BPA process.

We recognize that a thorough assessment of potential sediment quality impacts would be resource intensive. However, financial responsibility for the conduct of studies necessary to develop relevant sediment quality criteria should be borne principally by the pesticide registrants, and reviewed and acted upon by U.S.EPA in the pesticide registration process.

Assessment of Aquatic Life Uses

We disagree with the proposed approach to designate aquatic habitat beneficial uses in tributary streams. Water Board staff suggested that a beneficial use will be deemed supported if *any* aquatic life is observed in a given stream. We believe that mere confirmation of the presence or absence of *any* aquatic life does not provide useful information for any practical purpose. Since it is unlikely that any completely lifeless streams will be found in the Central Valley, the proposed field work would appear to be an inefficient use of resources.

We propose that an examination of the relative status of aquatic life in selected streams would be more useful. Furthermore, this project would appear to be more appropriate for the Basin Plan triennial review process.

Thank you again for your consideration of these comments. We look forward to working with Water Board staff in the continued process of developing the Pesticides BPA for pesticides in the Sacramento and San Joaquin Rivers. Please contact Dave Tamayo of my staff at 916 874-8024 or tamayod@saccounty.net if you have any questions.

Sincerely,

Kerry Schmitz, Senior Civil Engineer

cc:

Bill Busath, City of Sacramento
Delia Garrison, City of Sacramento
Sarah Amaya, Folsom
Ramy Kamel, Elk Grove
Kevin Becker, Citrus Heights
Tony Elce, Galt
Kathy Garcia, Rancho Cordova

Comment Letter 7

John S. Sanders, Ph.D., Chief, Environmental Monitoring Branch California
Department of Pesticide Regulation.

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Department of Pesticide Regulation



Mary-Ann Warmerdam
Director

MEMORANDUM

Arnold Schwarzenegger
Governor

TO: Joe Karkoski
Senior Water Resources Control Engineer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

FROM: John S. Sanders, Ph.D., Chief
Environmental Monitoring Branch
(916) 324-4155

Original signed by

DATE: March 17, 2006

SUBJECT: SCOPING FOR THE DEVELOPMENT OF AMENDMENTS TO THE BASIN
PLAN TO CONTROL THE DISCHARGE OF PESTICIDES

Thank you for the opportunity to comment on the scope of amendments being considered for inclusion in the Central Valley Regional Water Quality Control Board's (Regional Board's) water quality control plans (Basin Plan). The amendments would add water quality objectives and implementations for pesticides that potentially affect aquatic life uses in surface waters. The Department of Pesticide Regulation's (DPR's) comments are presented below.

Comment 1: As you consider options for implementing water quality objectives, we recommend that you consider how DPR may help achieve Regional Board goals related to pesticides and water quality. DPR is the lead agency for regulating the sales and use of pesticides in California and is mandated by State law to protect the environment from adverse effects of pesticide use. Specifically, DPR is mandated to:

- Protect the environment (including surface water and associated habitat) from environmentally harmful pesticides by prohibiting, regulating, or ensuring proper stewardship of those pesticides (Food and Agricultural Code [FAC] section 11501).
- Prohibit or regulate the use of environmentally harmful materials and to take whatever steps necessary to protect the environment (FAC section 14102).
- Endeavor to eliminate from use in the state any pesticide that endangers the agricultural or nonagricultural environment (FAC section 12824).

State law also provides DPR with specific regulatory tools to fulfill its mandates. These tools include:

Restricted Materials Designations. The Director of DPR shall designate a pesticide a restricted material if the pesticide presents significant hazards to the environment, including drift onto streams and lakes and persistence in soils that leads to contamination of waterways (FAC section 14004.5).



Pesticide Use Permits. To buy or use a restricted material, a person must obtain a permit from the county agricultural commissioner (CAC). If CAC determines that an adverse effect is likely, he or she may deny the permit or condition the permit so that site-specific practices are followed (FAC section 14006.5). In practice, DPR often provides CACs with suggested permit conditions. CACs may follow DPR's suggestions or structure their own restrictions.

Use Requirements. DPR shall adopt regulations that govern the use and possession for restricted materials that are injurious to the environment (FAC section 14005).

CAC-Authorized Permits. CACs are authorized to require permits for agricultural uses of pesticides that are not designated restricted materials if CAC first determines that the pesticide would present an undue hazard when used under local conditions (FAC section 14006.6).

Cancellation. DPR may cancel the registration of, or refuse to register, a pesticide that has demonstrated serious uncontrollable adverse effects either within or outside the agricultural environment (FAC section 12825).

Suspension. DPR may suspend the registration of a pesticide if the use of the pesticide poses an immediate substantial danger to persons or the environment (FAC section 12826).

DPR has an additional tool described in Title 3, California Code of Regulations (3CCR):

Reevaluation. If DPR finds that a significant adverse impact has occurred or is likely to occur, the pesticide involved shall be reevaluated (3CCR section 6220). Under a reevaluation, DPR may require pesticide registrants to submit additional data to determine the nature or extent of the potential hazard or identify appropriate mitigation measures (3CCR section 6192). DPR can conclude reevaluations in several ways. If the data show that use of the pesticide presents no significant adverse effects, DPR concludes the reevaluation without additional mitigation measures. If additional mitigation measures are necessary, DPR may adopt regulations to mitigate the potential adverse effect. In applicable situations, DPR works with registrants and the U.S. Environmental Protection Agency to revise labels to mitigate hazards. If the adverse impact cannot be mitigated, DPR cancels or suspends the registration of the pesticide product.

As an example of how DPR can use reevaluation in response to the presence of pesticides in surface waters, DPR placed into reevaluation all agricultural use products containing diazinon that are used as dormant sprays because diazinon concentrations frequently exceeded the Department of Fish and Game's recommended water quality criteria during the winter runoff season. In this reevaluation, registrants of these pesticides are required to identify mitigation strategies that will reduce or eliminate diazinon in surface water. Significantly, registrants responded to this reevaluation by changing use directions on product labels. These changes should substantially reduce movement of diazinon from application sites.

Comment 2: The Regional Board should consult with DPR throughout the development of these Basin Plan amendments. This recommendation is in keeping with DPR's management agency agreement (MAA) with the State Water Resources Control Board (State Board), in which DPR agreed to work cooperatively with the State and Regional Boards during the development and implementation of regulatory programs that address the effects of pesticides on water quality. More recently, DPR adopted its "Process for Responding to the Presence of Pesticides in Surface Water," which provides more specificity. It is plausible that if new numeric water quality objectives for pesticides are ultimately adopted by the Regional Board, the implementation plans can recognize DPR's commitment to be the Regional Board's regulatory partner. This may obviate the need for the Regional Board to actively regulate pesticide discharges and instead rely on DPR's authorities over pesticide sales and use to control pesticide discharges. This may be an attractive alternative if, during the course of the development of these Basin Plan amendments, the regulated public comments that would be too burdensome for the Regional Board to have a dominant regulatory presence for regulating pesticide discharges.

Comment 3: The scope of this project should include an element stating that the Regional Board will evaluate existing provisions of its Basin Plan that address pesticides and water quality and, if necessary, amend them to maintain a consistent and up-to-date representation of how the Regional Board implements water quality objectives for pesticides.

DPR looks forward to working closely with Regional Board staff to help craft amendments that efficiently make the most of Regional Board and DPR authorities and help assure that pesticide discharges comply with water quality objectives.

Thank you for your consideration. If you have any questions or comments, please direct them to Marshall Lee, of my staff, at (916) 324-4269 or <mlee@cdpr.ca.gov>.

cc: Paul H. Gosselin, DPR Chief Deputy Director
Mark S. Rentz, DPR Deputy Direct
Marshall Lee, DPR Senior Environmental Research Scientist (Supervisor)
Patricia Gouveia, State Board MAA Coordinator
Nan Singhasemanon, DPR MAA Coordinator

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Comment Letter 8

William Thomas, Representing Dow AgroSciences

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March 17, 2006

VIA E-MAIL TO: JKARKOSKI@WATERBOARDS.CA.GOV

Joe Karkoski
California Regional Water Quality
Control Board, Central Valley Region
11020 Sun Center Dr #200
Rancho Cordova, CA 95670-6114

RE: COMMENTS ON PROPOSED PESTICIDE BASIN PLAN AMENDMENT

Dear Mr. Karkoski:

On behalf of Dow AgroSciences ("DAS"), we attended the briefing sessions you held on the proposed new pesticide program and have preliminarily reviewed the Powerpoint presentation slides which were distributed. Our understanding is that you wanted initial comments on the first components of the proposed program by March 17, 2006, and subsequent comments on components by March 31, 2006.

I file these brief comments to highlight our general areas of concern which will be expanded in more comprehensive comments which we will submit by March 31.

DAS has been an industry leader in water quality. DAS has worked closely with the Regional Board on monitoring programs (i.e., Orestimba Creek monitoring), promoted management practices, engaged product stewardship, coordinated with the watershed coalitions, and amended pesticide product labels. Our commitment to improved water quality is without parallel.

1) Our overall concern is that there have been so many new and emerging programs dealing with water quality that they divert attention, create confusion and overtax resources. This new program, therefore, seems unnecessary or premature until these other programs stabilize.

Some of these other new programs include:

- (a) the diazinon TMDL
- (b) the diazinon and chlorpyrifos TMDL in the San Joaquin River
- (c) the chlorpyrifos and diazinon TMDL in the Delta
- (d) urban pesticide programs
- (e) San Joaquin River issues regarding Boron, Salt and dissolved oxygen
- (f) chlorpyrifos and diazinon label changes

- (g) Central Valley Ag Waiver: (1) the new waiver; (2) the new MRP
- (h) North Coast, Central Coast and Los Angeles Regional Board Ag Waivers
- (i) Toxic Hot Spot Program
- (j) SWAMP monitoring
- (k) DPR dormant spray regulations
- (l) a new rice program
- (m) the State Board's cease and desist order on salinity
- (n) State and Regional Board workshop on Salinity, etc.

These numerous programs are presently emerging or being amended, and are not coordinated between themselves. Most of these programs already deal with pesticide issues; therefore, there are substantial concerns with creating yet another and altogether new program.

2) A parallel concern has to do with the proposal to introduce another aggressive monitoring program. Presently, there are numerous water quality monitoring programs ongoing, many of which are just coming on line and they too are not yet coordinated. Another program a of monitoring the same targets over the same general area without coordination is not appropriate. (Slides 12, 68, 73 and 74.)

Some of these other monitoring programs include:

- (a) rice pesticide monitoring
- (b) Agricultural waiver monitoring by coalitions
- (c) Delta chlorpyrifos and diazinon TMDL
- (d) San Joaquin River chlorpyrifos and diazinon TMDL
- (e) Regional Board, University of California, Davis, University of California, Berkley monitoring
- (f) SWAMP monitoring
- (g) Department of Pesticide Regulation surface water monitoring
- (h) USGS monitoring
- (i) NPDES stormwater and urban monitoring programs

3) This overall new program is expressly focused on pesticides as if they are the only biological stressors in the watershed. The program should not start with this built in-bias, but should evaluate all biological stressors. The initial monitoring conducted per the Irrigated Lands Program has demonstrated that there are many water quality objective issues which are not related to pesticides and surprisingly few pesticide caused problems. Many other states seem to be taking a more scientific and global approach in respect to evaluating aquatic health.

4) The proposed program seems to suggest that it may attempt to impose aquatic life beneficial use designations universally. If a new beneficial use is to be designated, it should be a specific amendment to the Basin Plan, and specific to particular designated water bodies. (Pages 2, 62, 64.)

March 17, 2006

Page 3

5) The proposed program outlines how it will determine "high risk" pesticides relative to aquatic life. Why the sole focus on aquatic life, as opposed to other beneficial uses (municipal, agricultural, recreational, fish, etc.)? (Page 9.) The suggested mechanism to characterize a pesticide as high risk also seems to be overly focused on "pounds of use" to make this determination. This should not be the principle criteria or the program will focus on benign fungicides (i.e., sulfur) and high rate fumigants which do not offer water quality issues. (Page 24.)

6) The new program makes passing reference to biological assessments, however, it does not impose or incorporate a full biological evaluation of the area biota to determine if actual "in field" biological impacts are actually caused even if an indicator species is slightly decreased at the sample location. These sort of evaluations are the emerging scientific and regulatory approach, yet they have been slow to be initiated in our region. (Page 60.)

7) The risk assessment should not just be academically (university) and bureaucratically (Board staff) developed and then sent to peer review. It should be developed in conjunction with interested parties/experts and then fully vetted through science panels. (Pages 44 through 47.)

8) The program expressly centers on chlorpyrifos and suggests new water quality objectives may be developed. The Board is presently engaged in developing TMDLs for chlorpyrifos in each, the San Joaquin River and the Delta. In each of these endeavors, water quality objectives are being developed and, in fact, are being incorporated into the Basin Plan. These levels are exceedingly low and protective of even the most sensitive biological species. Therefore, there seems to be no need to immediately revisit these criteria issues.

A) The emerging TMDLs also incorporate an additivity formula to further reduce water quality objectives when both chlorpyrifos and diazinon are present. This further points out that a new evaluation is unwarranted. One issue, however, which needs to be addressed in using the proposed additivity formula is to clarify that such additivity formula is inappropriate to engage when the presence of one of the two pesticides is present only at very small levels. When a single pesticide is present at very low levels, there is no biological impact therefore, there is no biological influence which can trigger application of additivity.

B) The program should follow and be consistent with U.S. EPA objectives so as to incorporate consistency and maintain a level playing field. (Page 42.)

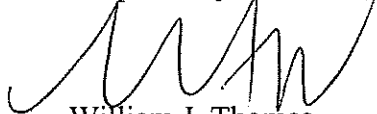
9) There is concern regarding establishing further narrative standards as is suggested for sediment toxicity. Narrative objectives have proven to be problematic and subject to various interpretations and confusion. (Pages 11 and 50.)

10) The development of this program should only be advanced with a complete evaluation of the total impact and the economic impact on the agricultural community and the watershed coalitions. (Page 12.)

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Page 4

11) This new program must be fully coordinated with the California Department of Pesticide Regulation and the agricultural watershed coalitions. (Page 75.)

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'WJ Thomas', written over a horizontal line.

William J. Thomas
on behalf of Dow AgroSciences

cc: Dow AgroSciences
Paul Hann: phann@waterboards.ca.gov

Comment Letter 9

Carrie McNeil, DVM, Deltakeeper

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March 17, 2006

Joe Karkoski
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive #200
Rancho Cordova, California 95670-6114

RE: CEQA Scoping, Central Valley Pesticide TMDL and Basin Plan Amendment

Dear Mr. Karkoski:

I am writing on behalf of DeltaKeeper, a chapter of Baykeeper. We thank you for this opportunity to provide comments regarding the scope of CEQA evaluation of the Central Valley Pesticide TMDL and Basin Plan Amendment. We appreciate your goal of monitoring more than one pesticide in order to avoid problems associated with creating new problems of replacement pesticides.

Since there are 300 pesticides in the Central Valley and this TMDL will address only those pesticides with a high risk ranking, you may want to consider renaming the TMDL based on those specific pesticides in order not to limit future regulation on other pesticides.

The purpose of this CEQA review should be to analyze the potential significant adverse environmental impacts, including cumulative effects, of pesticides entering California waters. DeltaKeeper submits the following list as essential, but not exhaustive, topics for coverage:

Geographic Scope

Noting that federal law requires that fishing and swimming beneficial uses be protected in waters of the United States and that the 9th Circuit has held that irrigation canals are waters of the United States if they exchange waters with natural creeks and other waters of the U.S. *Headwaters, Inc. v. Talent Irrigation District*, 243 F3d 526 (9th Cir Mar. 12, 2001), the geographic scope of the Central Valley Pesticide TMDL must:

- **Include all waterways of the United States, including but not limited to agricultural drainages, irrigation canals and channeled urban waterways**
- **Address beneficial uses on a waterway by waterway basis**

Scope of the EIR should address:

- Establishing standards reflecting the needs of all beneficial uses, including but not limited to drinking water.
- Water quality throughout the Central Valley and all other potentially affected waterbodies;

- Water quantity throughout the Central Valley and all other potentially affected waterbodies;
- Groundwater sources throughout the Central Valley and California;
- Municipal drinking water supplies throughout the Central Valley and California;
- Biological resources including, but not limited to:
 - federal and state listed endangered species
 - federal and state listed threatened species
 - other aquatic life
 - other terrestrial species
- Terrestrial ecosystems throughout the Central Valley and California;
- Air quality in the Central Valley and throughout California from pesticide drift, and other such air pollutants resulting from the project and alternatives;
- Soil and sediment in the Central Valley and California including, but not limited to problems involving soil erosion and sediment toxicity;
- Human health throughout the Central Valley and California in terms of both acute and chronic impacts including, but not limited to:
 - children, including residents and school children
 - laborers, including farmworkers, farmers, pesticide applicators, etc.
 - residents
 - anglers
 - pregnant women
 - newborn infants
- Recreational, tourism and beneficial uses;
- Farmland conversion and commercialization;
- Food supply and food quality;
- Energy use associated with pumping and delivery of irrigation water;
- Workers producing toxic chemicals for use under the proposed project;
- Potential security threats from storage of large quantities of toxic chemicals;
- All other socioeconomic factors, including the cost to treat contaminated water.

Pesticide Risk Assessment

The Pesticide Risk Assessment proposed presents a schematic for ranking pesticides by several variables. However, this ranking and prioritizing of pesticides was completed without full data on all pesticides addressed. Pesticide Risk Assessment must include but not be limited to:

- The additive and synergistic effects of pesticides
- Cumulative impacts
- Those pesticides listed in the 303d list for these waterbodies
- Evaluation of water and sediment for pesticides with high KOC, like pyrethroids
- Include in the evaluation any new pesticides being used within the timeframe of the CEQA process

In the process of evaluating the impacts of the proposed regulation, the Regional Board should identify the specific practices that pesticide

dischargers would or could adopt for the purposes of complying with the the TMDL and Basin Plan Amendment and evaluating the efficacy of these practices for improving water quality. The Regional Board should also evaluate the suitability of such practices for application on various crops throughout the Central Valley. We note that certain best management practices may also pose adverse environmental impacts which must be evaluated, such as increased energy consumption, air emissions, and pollutant concentration in effluent flows or settling ponds. Best management practices that might be implemented by Central Valley growers, and should be evaluated, include:

- integrated pest management;
- integrated nutrient management;
- vegetated filter strips, buffer strips and hedgerows;
- on farm drainage management and reuse;
- water conservation and irrigation efficiency;
- cover cropping;
- crop rotation;
- conservation tillage; and
- other erosion control practices.

In addition to complying with the requirements of CEQA, such an analysis will provide valuable information for growers seeking to select the most effective best management practices to comply with future regulatory requirements.

Finally, the following issues must be analyzed regarding the proposed project and any alternatives in light of the State's recent budgetary setbacks:

- the impacts of the proposed project and alternatives on other Regional Board programs, including an analysis of staff and funding constraints;
- the impacts of the implementation of a fee generating project alternative (such as permits) versus a project that would fail to generate fees;
- an analysis of how a project that fails to generate fees will be successfully implemented.

Thank you again for this opportunity to comment. Please contact me if you have questions. We look forward to working with you on the development of a thorough EIR for this project.

Sincerely,

Carrie McNeil, DVM
Deltakeeper
Deltakeeper Chapter of Baykeeper
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(209) 464-5090
carrie@baykeeper.org

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Comment Letter 10

Renee Pinel, President, Western Plan Health Association

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WPHA

Western Plant Health Association

March 20, 2006

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JK

Mr. Joe Karkoski, Chief
Pesticide TMDL Unit
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, California 95670

Dear Mr. Karkoski:

The Western Plant Health Association (WPHA) submits the following comments in response to the Regional Water Board's *Notice of California Environmental Quality Act (CEQA) Scoping Meeting and Public Workshop on the Development of Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) to Control the Discharge of Pesticides*. WPHA represents the interests of fertilizer and crop protection manufacturers, distributors, formulators and retailers in California, Arizona and Hawaii. WPHA members market commercial fertilizers, soil amendments, agricultural minerals and crop protection products. More than 90 percent of all fertilizer and crop protection companies are represented by WPHA.

The proposed Basin Plan Amendment (BPA), which is intended to include a review of aquatic life beneficial uses on natural streams not identified in the Basin Plan, establish numeric water quality objectives for pesticides that impact the water column, establish narrative sediment quality objectives, and establish policies for determining compliance with the objectives, will have a direct impact on WPHA's members. Thus, WPHA requests that the Regional Water Board maintain direct communications with WPHA and its members on this issue. In addition, WPHA provides the following comments on the BPA for pesticides.

- WPHA is concerned that the Regional Board's proposed approach inappropriately focuses on the concentration of pesticides being the only stressor potentially impacting aquatic life. The Regional Board's approach fails to consider and understand the biological status of the various water bodies throughout the Central Valley and does not account for the interrelationships between all stressors that may impact aquatic life. The USEPA Office of Water recommends the use of biological assessments and biocriteria in state water quality standards programs.¹ In fact, one of the USEPA's primary objectives is to "ensure that all States and Tribes develop water quality standards and programs that use

¹ USEPA, Office of Water, "Stressor identification Guidance Document," December 2000, page 1-1.

bioassessment information to evaluate the condition of aquatic life in all waterbodies.”²

- WPHA recommends that the Regional Board take this opportunity to apply the USEPA’s recommendations regarding the use of biological assessments and biocriteria and to apply USEPA’s Stressor Identification Process to Central Valley waterways.
- WPHA recommends that the Regional Board review the Ecologically-Based water quality goals that have been established for aquatic life uses in Ohio and Maine. These two states are at the forefront in establishing beneficial use classification systems that recognize the inherent variability of waterways throughout a region. More specifically, both of these programs have established aquatic life beneficial uses that reconcile the difference between ideal conditions and reality, and take into account that pristine conditions for many waterways were eliminated over a hundred years ago through the development of agricultural and urban uses.
- WPHA recommends that the Regional Board establish a formal technical review committee for this process. The technical review committee should be composed of qualified experts representing all stakeholder interests and areas of expertise. The Regional Board’s currently proposed process that is limited to restricted internal and contracted project work followed by limited scientific peer review and public comment is insufficient to ensure that the best scientific methods are used in the review and adoption of water quality standards for the Sacramento and San Joaquin Rivers.
- With regard to the establishment of narrative sediment water quality objectives, WPHA recommends that the Regional Board defer its development of a narrative sediment objective until after the State Water Resources Control Board has completed its process for the development of sediment water quality objectives. The State Water Resources Control Board has spent over two years in its development of a data-driven, multiple lines of evidence approach for assessing sediment quality. Considering the significant investment in time and resources that the State Board has invested to develop a scientific, data-driven process, the Regional Board would be well-served to rely on its findings. Otherwise, the Regional Board will be perceived as establishing a narrative sediment objective that has not undergone the same thorough process, discussion and review as the State Water Board’s, and that the Regional Board’s objective is therefore scientifically invalid and inappropriate.
- In addition, WPHA wants to emphasize that the Regional Board must comply with the intent and the specific requirements of the California Water Code when adopting water quality objectives. In other words, the specific requirements for adopting water quality objectives (Ca. Water Code §§13241-13242) must be

² Id.

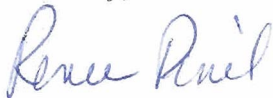
applied consistently with the California Legislature's intent, which is to balance the needs of maintaining high quality water against all of the demands being placed on the water. (Ca. Water Code, § 13000.) Most importantly, the Regional Board must balance the economic considerations against the environmental impacts associated with achieving the objective.

- The Regional Board must also apply California Water Code sections 13241 and 13242 to the adoption of narrative sediment water quality objectives. In our experience, the requirements contained in Water Code sections 13241 and 13242 are often not applied to narrative water quality objectives, which is inconsistent with the law. California Water Code sections 13241 and 13242 apply to the adoption of all water quality objectives, regardless of the nature of the objective. Therefore, the Regional Board must consider all of the factors outlined in Water Code section 13241 when adopting narrative objectives, and must prepare programs of implementation as required by Water Code section 13242.
- Furthermore, the Regional Board must carefully articulate how the Regional Board intends to interpret the narrative objective and consider the factors of Water Code section 13241 in relationship to interpreting the narrative objective with available water quality criteria. WPHA is concerned that the Regional Board may avoid the consideration of economics, water quality conditions that can be reasonably achieved, and other factors contained in Water Code section 13241 on the water quality criteria used to interpret the narrative.

Overall, WPHA encourages the Regional Board to take this opportunity to use a multiple lines of evidence approach for the development of scientifically sound water quality objectives for both sediment and water. It would be unfortunate if the Regional Board expended significant time and resources on a broad BPA for pesticides and the BPA did not consider the biological status of the waterbodies in question and did not properly account for all stressors that may impact aquatic life.

Thank you for allowing WPHA to comment on the proposed BPA process. We look forward to working closely with the Regional Board as the Board moves forward on this very important Basin Plan Amendment. Please do not hesitate to call me if you have any questions.

Sincerely,



Renee Pinel
President

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